# IVV 12: Metrics

**Version: M**

**Effective Date: May 19, 2017**

Note:  The official version of this document is maintained in IV&V's internal IV&V Management System Website (https://confluence.ivv.nasa.gov:8445/display/IMS).  This document is uncontrolled when printed.

## Purpose

The purpose of this system level procedure (SLP) is to document the process and responsibilities for establishing, maintaining, and reporting metrics for the NASA IV&V Metrics Program. Metrics help the NASA IV&V Program achieve its strategic goals and objectives and continually improve its products, processes, and services.

## Scope

This SLP is applicable to all metrics approved or considered for inclusion in the NASA IV&V Metrics Program.

## Process Flow Diagram

The following diagrams depict processes described in this document, and the responsibilities and actions of process participants or their designees.  Any information supplemental to a depicted process will appear after the diagram.
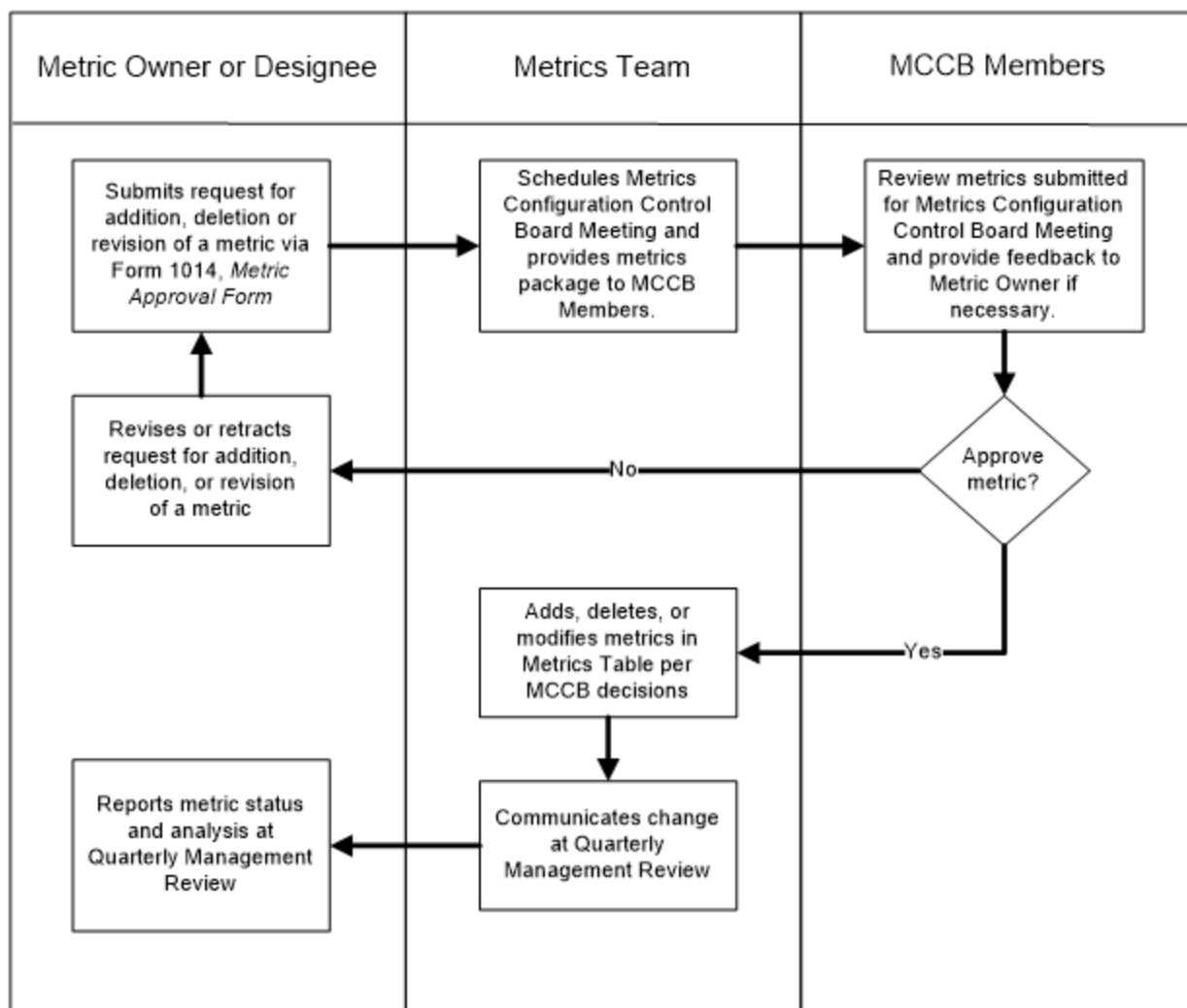
**IVV 12 Process Flow Diagram -- 05-19-2017.vsd.vsdx**

## Annual Metrics Review

Each fiscal year, the Metrics Team shall review the NASA IV&V Metrics Program, including:

- The structure of the metrics program (e.g., GQM).
- The content of the metrics structure (e.g., the Goals and Questions).
- The set of metrics as a whole (e.g., Does this set of Goals, Questions, and Metrics give us a complete and accurate picture of IV&V Program performance?)

The Metrics Team shall recommend and/or implement changes in response to this review. The Metrics Team shall ensure a summary of the outcome of the annual metrics review is captured.

## Requesting New or Modifying Existing Metrics

To request a new metric or the revision or deletion of an existing metric, the requester shall submit Form 1014, *Metric Approval Form*, to the Metrics Team.  The Metrics Team shall provide the Metrics Package to the MCCB and schedule a meeting with the MCCB and the Metric Owner to review the proposal. Additions, deletions, or revisions shall be approved or rejected by the MCCB at the time of the meeting.

After a request is approved, the Metrics Team shall make the required changes to the Metrics Table located on the ECM system and changes shall be highlighted at the subsequent QMR meeting.

### Reporting Metrics

Metric Owners are responsible for reporting the status of their metrics at the QMR. This reporting should take place quarterly or per the collection frequency of the metric, whichever is longer.  Metric Owners shall report their data analysis along with the data itself. Refer to S3003, *Quick Reference Guide for IV&V Metrics Analysis*, for guidance on metrics analysis.

# Records

The following records will be generated or updated and filed in accordance with this SLP and IVV 16, *Control of Records*, and in reference to NASA Procedural Requirement (NPR) 1441.1, *NASA Records Management Program Requirements*.

| Record Name | Original | Vital | Responsible Person | Retention Requirement | Location |
|---|---|---|---|---|---|
| Metrics Table | Y | Y | Metrics Team | Destroy when 7 yrs old (1/26.5A) | ECM |
| Completed Form 1014s | Y | N | Metrics Team | Destroy when 7 yrs old (1/26.5A) | ECM |
| Metrics Package | Y | N | Metrics Team | Destroy when 7 yrs old (1/26.5A) | ECM |
| Annual Metrics Review Summary | Y | N | Metrics Team | Destroy when 7 yrs old (1/26.5A) | ECM |

## Definitions and Acronyms

Official NASA IV&V roles and terms are defined in the Quality Manual.  Specialized definitions identified in this SLP are defined below.

- **Metric**

- A metric is a measure of progress toward a specific Program, Office, or Group goal. All metrics in the scope of this SLP are contained in the Metrics Table.

- **Metric Owner**
  - A Metric Owner is the individual responsible for ensuring the achievement of the goal measured by a specific metric and for reporting metric data and data analysis during each reporting period.

- **Metrics Analyst**
  - The Metrics Analyst is an individual who generates, maintains and updates the Metrics Table, and provides support to the Metrics Lead in coordinating the day-to-day activities of the NASA IV&V Metrics Program.

- **Metrics Lead**
  - The Metrics Lead is a NASA IV&V civil service employee who implements and manages the NASA IV&V Metrics Program.  The Metrics Lead reports to the Strategic Communications Office Lead.

- **Metrics Package**
  - The Metrics Package is the summary of requested additions, modifications, or deletions to metrics, which the Metrics Team sends to the MCCB ahead of a MCCB meeting.

- **Metrics Team**
  - The Metrics Team is comprised of the Metrics Lead and any Metrics Analysts.

- **Metrics Table**

  - The Metrics Table is a spreadsheet located on the ECM System, which contains descriptions of each metric that has been approved for inclusion in the NASA IV&V Metrics Program. The Metrics Table is revised each quarter and updated each fiscal year via the process outlined in the Process Flow Diagram section.

- **Metrics Configuration Control Board (MCCB)**
  - The MCCB is the group of individuals responsible for approving or rejecting additions, deletions or modifications to the metrics contained within the NASA IV&V Metrics Program. This group is comprised of the members of IV&V Senior Leadership**.**

### Acronyms

| | |
|---|---|
| ECM | Enterprise Content Management |
| GQM | Goal, Question, Metric |
| IMS | NASA IV&V Management System |
| MCCB | Metrics Configuration Control Board |
| NODIS | NASA Online Directives Information System |

| NPR | NASA Procedural Requirements |
|-----|------------------------------|
| QMR | Quarterly Management Review |
| SLP | System Level Procedure |

# References

| REFERENCES | |
|------------|---|
| **Document ID/Link** | **Title** |
| Form 1014 | Metric Approval Form |
| IVV QM | NASA IV&V Quality Manual |
| IVV 16 | Control of Records |
| NPR 1441.1 | NASA Records Management Program Requirements |
| T2007 | QMR Metrics Template |
| S3003 | Quick Reference Guide for IV&V Metrics Analysis |
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**If any process in this document conflicts with any document in the NASA Online Directives Information System (NODIS), this document shall be superseded by the NODIS document. Any reference document external to NODIS shall be monitored by the Process Owner for current versioning.**

# Version History

| VERSION HISTORY | | | | |
|-----------------|---|---|---|---|
| **Version** | **Description of Change** | **Rationale for Change** | **Author** | **Effective Date** |
| Basic | Initial Release | | Stephanie Ferguson | 3/23/2005 |
| A | Changed section referenced for email instructions in Section 6.2 | | Stephanie Ferguson | 7/8/2005 |

| B | Updated the following:  Section 4.0 modify flow to include metrics reporting at QMRs, Section 5.0 to include roles, Section 6 to provide more detail regarding analysis or metrics and QMR reporting. | | Stephanie Ferguson | 1/17/2006 |
|---|---|---|---|---|
| C | Modified the flow in Section 4.0 to now include two separate flows. | | Stephanie Ferguson | 10/24/2006 |
| D | Update process flow diagrams to align with Facility Management paradigm | | Stephanie Ferguson | 8/6/2007 |
| E | Changed "IV&V Facility" to "IV&V Program" | | Stephanie Ferguson | 12/17/2008 |
| F | Include information on the Metrics Table file path and the email address for the IMS mailing list | | Stephanie Ferguson | 10/20/2009 |
| G | Updated verbiage in Section 6.0, Records | | Sara Cain | 1/12/2010 |
| H | Updated file paths to point to the ECM; added Metric Approval Form 1014; changed annual review process | | Stephanie Ferguson | 1/25/2011 |
| I | Updated scope, definitions, process flow diagram and text for modifying metrics during FY. | PAR 2011-P-339: Under current management, IV&V metrics will be contained within one system | Keenan Bowens | 10/3/2011 |
| J | Add Metrics Owners' reporting requirements. | | Keenan Bowens | 3/14/2012 |
| K | Several updates and clarifications, some are: Add Metrics Package and Metrics Team definitions; replace notifications by email with QMR meeting notifications. | Annual Document Review. More accurately reflect actual process. | Keenan Bowens | 5/28/2013 |
| L | Added supporting document S3003, Quick Reference Guide for IV&V Metrics, and referenced it in the text. | New supporting document | Clarence Swiger | 8/22/2013 |

| M | Add GQM (Goal, Question, Metric). Expand scope of Annual Metrics Review. Update section titles for accuracy (4.1 and 4.2). Remove references to cancelled metrics template T2007. | CAR 2016-C-479: Ensure we think about not only review of individual metrics, but also review of the big picture, including the GQM structure and potential gaps. PAR 2016-P-477: The latest QMR slides serve as a better template than T2007; also, as we make tweaks to the format in QMR's, T2007 may easily get out of date. | Jeffrey Northey | 5/19/2017 |
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